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October 31, 2000

VIA FACSIMILE and FIRST-CLASS MAIL

Mr. Bradley Stimple
On-Scene Coordinator
U.S. Environmental Protection Agency
Region 5
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Chicago, IL 60604-3507

Mr. James Jansen
Illinois Environmental Protection Agency
Des Plaines Regional Office
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Re: Nicor Mercury Sites - Scrap Yards and Processing Facilities

Dear Brad and Jim:

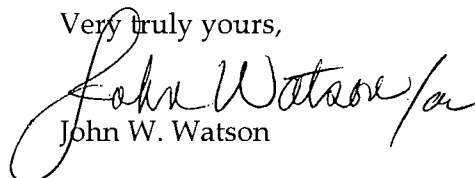
Pursuant to our recent discussions, enclosed you will find the Amended Removal Action and Confirmation Sampling Plan required to be prepared and submitted to U.S. EPA pursuant to the CERCLA Section 106 Order issued by U.S. EPA on September 6, 2000.

This Amended Plan shall update the previous plan submitted to U.S. EPA on September 21, 2000. The purpose of this amendment is to confirm limited changes to Nicor's proposed procedures as it embarks on various removal actions at its reporting centers and other locations.

Please review the enclosed Amended Plan and provide us with formal approval of the proposed removal activities. As you know, Nicor has commenced the removal action contemplated in this Plan and is coordinating such activities with Illinois EPA representatives.

Please call me with any questions you might have regarding this matter.

Very truly yours,


John W. Watson

JWW/ac

Enclosure

cc: Claudia Macholz

**AMENDED
REMOVAL ACTION AND
CONFIRMATION SAMPLING PLAN**

**NICOR GAS REPORTING CENTERS
AND OTHER INDUSTRIAL/COMMERCIAL LOCATIONS**

September 21, 2000
Revised
October 25, 2000

By
James E. Huff, P.E.

1. INTRODUCTION

Nicor Gas previously developed a Standard Operating Procedure (SOP) for cleanup of mercury at Nicor Reporting Centers and other industrial/commercial locations where mercury has been identified. Based on the experience developed, this SOP has been amended, and this amended plan is included in Section 2. In addition, Nicor Gas desires to sort its scrap metal at all of its other Reporting Centers, where mercury vapors and mercury regulators have not been detected/observed within the scrap metal bins. This new SOP is presented in Section 3.

2. DECONTAMINATION OF SCRAP METAL BINS/PADS
AT THE REPORTING CENTERS WHERE MERCURY REGULATORS OR
MERCURY VAPORS ABOVE 0.010 mg/cu m ARE PRESENT

Nicor has completed segregating the mercury regulators (and mercury contaminated debris) from the remainder of the scrap metal present in the scrap metal bins at certain Reporting Centers. At some Reporting Centers, the scrap metal is stored on a concrete pad, with wooden sides. The following procedure is substantially the same at either type of site, modified as appropriate based on site specific conditions:

1. Place DOT rolloff box within ten feet from the existing scrap bins (or pads) and remove any tarp cover from DOT rolloff box.
2. With a Jerome meter,^{1/} measure and record the mercury vapor values on all four sides of the new rolloff box and the middle, by inserting the meter tip 6 to 12 inches inside the box. Reject the box if the average mercury level is greater than 0.010 mg/cu m.
3. Line the new rolloff box if not already lined.
4. With the Jerome meter, measure and record the mercury vapor readings within the existing scrap metal bin(s) on all four sides, holding the meter 3 to 6 inches above the scrap metal in the bin. Record the readings.
5. Drape plastic between the scrap metal bin and the new rolloff box if close enough or triple line the ground area between the rolloff and the existing scrap metal bin where loads may be dropped to remove mercury type regulators.
6. Monitor the perimeter of the boxes/bins with Jerome meter before starting, and every 20 minutes during the transfer for mercury vapors.
7. Prior to the transfer, suit up workers that will be inspecting the magnet and scrap metal transfer in Level C that will be closely inspecting the magnet and bin for mercury regulators and await for IEPA/U.S. EPA staff to observe the transfer operation, as requested.
8. Begin transfer operation with the magnet, removing small enough loads to readily inspect each load. All sides of the magnet are to be checked.
9. After every five loads or so, inspect the bin for newly exposed mercury type regulators. If readily accessible, remove by hand. Otherwise have the magnet gently set the regulator on the triple lined plastic.
10. Place any mercury type regulators in a lined 55 gal drum, and place lid on the drum (unsealed at this point).

^{1/}Where a Jerome Meter is referenced herein, a Lumex Meter may be substituted as available and where positive interference are suspected with the Jerome Meter readings.

11. Continue until scrap bin is substantially empty of ferrous metal.
12. Try to minimize the removal of paper, wood, and cardboard into the rolloff box.
13. Upon emptying the bins, before cleaning, use the Jerome meter and record the mercury vapor readings in the rolloff box and the bins, using the same procedure as above.
14. With coordination of the IEPA, carefully pull out the mercury-type regulators and open mercury end cap to see if mercury is present, and to provide the Agency rep with a sample, if so desired.
15. Record Jerome meter mercury vapor reading in each mercury regulator where no mercury was present.
16. When the IEPA is done with any mercury regulators, close up drum and seal it and label drum with Yellow Hazardous Waste Label, and complete the generator ID number, address of Reporting Center. The DOT shipping name will be:

“RQ, Waste Mercury contained in manufactured articles, 8, UN2809, PG III.”

These regulators will be disposed of as “high-level” mercury waste,” at Superior Special Services in Port Washington, WI.

17. Clean inside of the bin(s), striving to achieve 0.010 mg/cu m by scrapping, sweeping, vacuuming, and using mercury cleaning solution 102, as appropriate. Place all paper, cardboard, and small wood in 55 gal drums for disposal as low level mercury contaminated (D009).
18. Larger pieces of debris should be checked with the Jerome meter. If less than 0.010 mg/cu m, place in the company trash dumpster. If over 0.010 mg/cu m, cut up and put in the 55 gal drum described above for the low level mercury debris.
19. Place all plastic in the same low level mercury debris drums.
20. After completion of the work, use the Jerome meter on the new scrap steel rolloff box, recording the values on all 4 sides.
21. Label all low level mercury debris with a Yellow Hazardous Waste Label. The proper DOT shipping name will be:

“RQ, Hazardous Waste Solid, n.o.s., 9, NA 3077, PG III, (D009)”

This low level waste will be transported to EQ in Belleville, MI for proper disposal.

For determining if a rolloff box full of scrap metal is “mercury-free”, the following protocol will be used:

1. Cover the rolloff box and immediately take mercury vapor readings between 3 and 6 inches above the scrap metal at six locations approximately equally spaced around the perimeter of the rolloff box.
2. At any location where a reading above 0.000 mg/cu m is recorded, collect a total of three samples at this location.
3. Average the three samples from each location into a single value.
4. Average the twelve samples, using 0.001 mg/cu m for all readings of 0.000 mg/cu m.
5. If the average is less than 0.010 mg/cu m, the material will go off as scrap metal to United Scrap. If the mercury vapors are above an average 0.010 mg/cu m, the scrap will be shipped off as solid waste to Newton County Landfill.

2.2 Soil/Concrete/Asphalt Sampling

2.2.1 Soil Screening and Soil Removal Procedures

After all of the scrap metal from the Reporting Center has been removed, and any visible mercury vacuumed up, a 10-ft by 10-ft sampling grid will be set up in the vicinity of the scrap storage and along any obvious drainage path. The following procedure will be utilized:

1. Set out a 10-ft by 10-ft grid with flagging or paint over the area.
2. Using the Jerome Meter, with particulate filter (or Lumex Meter) readings will be taken at the center of each flagged area, by placing an inverted cup over the area, if impervious, or by placing surficial material into a plastic bag and reading the head space. The results will be recorded. At any location where a positive reading is obtained, a second reading will be taken. The average result will be utilized. If interference is suspected, the zero filter will be installed and another reading taken.
3. At any earthen location where a reading above 0.010 mg/cu m is obtained, a backhoe will remove 6 inches of soil from the 10-ft by 10-ft area, and the area will be re-tested. Impervious areas will be washed with a mercury decontamination solution. This procedure will continue until the entire area achieves 0.010 mg/cu m mercury vapor.
4. The excavated soil will be loaded into a lined rolloff box or 1 cu yd lined box depending on the amount.
5. At the completion of this phase, the excavated soil will be sampled and covered.
6. The soil will be analyzed for TCLP RCRA metals. The soil will be disposed of as a RCRA low level mercury hazardous waste at EQ or as a solid waste at CID based on the sampling

results. Appropriate labels will be secured to the rolloff box as soon as analytical results are available.

2.2.2 Soil Confirmation Sampling Protocol

The following protocol will be used for confirming that the mercury has been successfully removed from the site.

1. From each row (in pervious areas), a soil sample from the location having the highest final Jerome Meter reading will be sampled from 0 to 3 inches using a hand auger, if possible, or a shovel and pick ax if the ground is too firm for the hand auger. The soil will be placed into a stainless steel mixing bowl, mixed thoroughly, and placed in four 4-ounce clean laboratory jars for analysis.
2. All samples will be labeled with the site, date, time, and sample grid location, and initialed by sampler. All samples will be placed in individual plastic bags and sealed to avoid cross contamination, and immediately placed in a cooler with ice. Care will be taken in filling the coolers to avoid breakage. A chain of custody will accompany the samples to the laboratory.
3. Between samples, the sampling equipment will be cleaned with the following protocol:
 - Alconox Wash with potable water
 - Tap water dip rinse
 - Mercury decontamination solution
 - Tap water dip rinse, separate container
 - Distilled water spray rinse
 - Air Dry
4. The samples will be shipped to Test America's Bartlett Laboratory for analysis of total mercury using method SW846 – 7471A, which has a method detection limit of 0.04 mg/kg and TCLP mercury by Method SW 846-1311 and 7470A which has a method detection limit of 0.0002 mg/L. In addition, the soil pH and % solids will be measured, so that it can be determined whether the soil migration to ground water pathway objectives are achieved and to report the results on a dry weight basis.
5. Duplicates will be collected for mercury and pH on one in ten samples. Field blanks and trip blanks will be collected daily when conducting confirmation sampling.
6. Test America will provide results ten working days from receipt.
7. Any confirmation samples above the objectives will necessitate further soil removal and additional confirmation testing.

2.3 Soil Cleanup Objectives

Response actions conducted by Nicor at the site will be deemed complete upon satisfaction of appropriate remediation objectives for mercury as provided at 35 Ill. Adm. Code Part 742. For reference purposes, the Tier 1 remediation objective for mercury are as follows:

Ingestion

Residential	23 mg/kg
Industrial/Commercial Objective (I/C)	610 mg/kg
Construction Worker Objective (CW)	61 mg/kg

Inhalation

Residential	10 mg/kg
Industrial/Commercial Objective (I/C)	540,000 mg/kg
Construction Worker Objective (CW)	52,000 mg/kg

Soil migration to ground water

<u>Soil pH</u>	<u>Total Mercury, mg/kg</u>
4.5 to 4.74	0.01
4.75 to 5.24	0.01
5.25 to 5.74	0.03
5.75 to 6.24	0.15
6.25 to 6.64	0.89
6.65 to 6.89	2.1
6.90 to 7.24	3.3
7.25 to 7.74	6.4
7.75 and above	8.0
or	
TCLP Mercury	0.002 mg/L

Nicor shall utilize the remediation objectives provided above or establish site specific standards or remediation strategies consistent with the requirements of 35 Ill. Adm. Code Part 742.

**3. DECONTAMINATION OF SCRAP METAL BINS/PADS AT REPORTING CENTERS
WHERE NO MERCURY-TYPE REGULATORS ARE VISIBLE and NO MERCURY
VAPORS HAVE BEEN DETECTED ABOVE 0.010 mg/cu m**

3.1 Background

Nicor Gas accumulates scrap metal at all of its Reporting Centers and at its Gas Storage Fields. At most of these locations, the scrap is stored in 6-to-12 cu yd scrap metal boxes (Lugger Boxes) owned by the scrap metal dealer. At some locations, the scrap is stored on asphalt or concrete, typically within three concrete or wooden walls, and the scrap periodically is removed by the local dealer.

All of these scrap metal storage areas have been checked visually for mercury-type regulators and with a Jerome Meter for the presence of mercury vapors. At certain locations, no mercury-type regulators were observed and all of the corners of the boxes had mercury vapors less than 0.010 mg/cu m. In essence, there is no evidence that any mercury-type regulators are present within these areas.

Nevertheless, Nicor desires to ensure with absolute certainty that no mercury-type regulators are present in the scrap processed by scrap dealers. Many of the scrap metal dealers are requesting that their Lugger Boxes be returned.

Sorting through the scrap looking for mercury-type regulators requires a grappler or magnetic crane. Moving such a crane from site-to-site has proven to be the rate limiting step in sorting. Each scrap metal dealer is set up to sort through scrap with such cranes, and each scrap dealer will only move his own Lugger Boxes.

Given this information, the following removal procedure is proposed for those scrap metal areas where there is no evidence of a mercury-type regulator.

3.2 Procedure

1. Contact the scrap metal dealer associated with each Nicor Reporting Center/Gas Storage Field about the possibility of sorting scrap, and cleaning the Lugger Box at the dealer's yard. Where an affirmative response is received, proceed accordingly. Where a scrap metal dealer declines, proceed with sorting at the Nicor facility, using a rental rolloff box for the transferred scrap.
2. Arrange for the scrap metal dealer to pick up all of its boxes at Nicor facilities, (except for those which are to be sorted at the Nicor facilities due to the presence of visible regulators or mercury vapors above 0.010 mg/cu m). If multiple Nicor facilities are using the same dealer, ask the dealer to record which Nicor facility each box originated from. These boxes are to be moved to the scrap yard, but not dumped.

3. Mobilize to the scrap yard and set down a double-lined plastic sheet. Have the scrap metal from the Lugger Box placed onto the plastic. If earthen beneath the plastic, collect four surficial soil samples before laying down the plastic sheet. Place each sample in a plastic bag, and set aside. If asphalt/concrete is beneath the plastic, screen the ground surface with the Jerome Meter ^{2/} and record the reading.
4. Carefully inspect the scrap metal for mercury-type regulators as it is placed onto the plastic. Remove any such regulators and immediately place in a lined 55 gallon drum. Record the number of regulators removed from each box.
5. A Jerome Meter will be present to monitor for mercury vapors during the sorting operation. This sorting will be performed in Level D, unless breathing zone mercury vapors exceed 0.012 mg/cu m, at which point workers will upgrade to Level C..
6. Place any paper, cardboard, wood or other debris in a 1 cu yd DOT box for disposal, along with the PPE and plastic sheeting. This box will be screened and if the average mercury vapor reading is above 0.010 mg/cu m, it will be disposed of at EQ as low-level mercury waste. If the average mercury vapor reading is less than 0.010 mg/cu m, these boxes will be consolidated at Heritage for disposal at CID in Calumet City, Illinois.
7. After completion of the scrap metal transfer, check the inside of the Lugger Boxes with a Jerome Meter by climbing inside and taking readings one-inch (\pm 0.5 inches) off the floor and walls. Clean the box if any area has an average reading above 0.010 mg/cu m.
8. Clean inside the Lugger Boxes, striving to achieve 0.010 mg/cu m by scraping, sweeping, vacuuming, and using mercury cleaning solution 102", as appropriate. Place all paper, cardboard, and small wood in container for disposal as low level mercury contaminated waste (D009).
9. Remove the plastic for disposal as solid waste, unless mercury regulators were found resulting in mercury beads. If a mercury release onto the plastic is a potential concern, dispose plastic as low level mercury hazardous waste at EQ. The plastic can be screened with the Jerome Meter, using the 0.010 mg/cu m as guidance for disposal.
10. Collect four additional soil samples in the plastic baggies and screen with Jerome Meter, and record results. If asphalt/concrete, screen surface as done initially, and record results. Decontaminate the area if the readings indicate an increase in mercury vapors.
11. With the exception of the mercury-type regulators and scrap metal testing above 0.010 mg/cu m, leave all of the remaining scrap, including spring-type regulators, at the scrap yard for processing. (The exception here is at the DeKalb and Ottawa Scrap Yards, where all regulators will be removed and placed in the 20 cu yd boxes that are on site awaiting disposal at Newton County Landfill.)

^{2/} Where a Jerome Meter is referenced herein a Lumex Meter may be substituted as available, and where positive interference are suspected with the Jerome readings.

12. Remove all wastes generated by this process to Heritage for staging or directly to disposal.
 - The mercury regulators will go to Superior in Port Washington (as RQ, Waste mercury contained in manufactured article, 8, UN 2809, PGIII-A DOT corrosive label is to be placed on each container.)
 - The low level mercury waste will go to EQ in Belleville, MI (as RQ, Hazardous Waste Solid UN 15, 9, NA 3077, PGIII (D009).
 - The non-hazardous waste will go to CID in Calumet City, including soil removed, PPE and plastic.
 - Scrap metal testing above 0.010 mg/cu m mercury vapor will be transported to Newton County Landfill as a non-hazardous waste.
 - All scrap metal testing below 0.010 mg/cu m mercury vapors will go to United Scrap.

3.3 Soil/Concrete/Asphalt Screening

3.3.1 Soil Screening and Soil Removal Procedures

After all of the scrap metal from the Reporting Center has been removed, the area will be visibly inspected for mercury droplets beneath the scrap metal bins. Any evidence of mercury will be noted, screened and removed. Then, a 10-ft by 10-ft sampling grid will be set up in the vicinity of the scrap storage and along any obvious drainage path. The following procedure will be utilized:

1. Set out a 10-ft by 10-ft grid with flagging or paint over the area.
2. Using the Jerome meter, with particulate filter (or Lumex Meter) readings will be taken at the center of each flagged area, by placing an inverted cup over the area, if impervious, or by placing surficial material into a plastic bag and reading the head space. The results will be recorded. At any location where a positive reading is obtained, a second reading will be taken. The average result will be utilized. If interference is suspected, the zero filter will be installed and another reading taken.
3. At any earthen location where a reading above 0.010 mg/cu m is obtained, a backhoe will remove 6 inches of soil from the 10-ft by 10-ft area, and the area will be re-tested with the Jerome or Lumex Meter. Impervious areas will be washed with a mercury decontamination solution. If after two washings the area does not meet 0.010 mg/cu m, any cracks will be sealed and an asphalt sealer will be placed over any asphalt areas.
4. The excavated soil will be loaded into a lined rolloff box or 1 cu yd lined box depending on the amount.
5. At the completion of this phase, the excavated soil will be sampled and covered.
6. The soil will be analyzed for TCLP RCRA metals. The soil will be disposed of as a RCRA low level mercury hazardous waste at EQ or as a solid waste at CID based on the sampling results. Appropriate labels will be secured to the rolloff box as soon as analytical results are available.

3.3.2 Soil Confirmation Sampling Protocol

The following protocol will be used for confirming that the mercury has been successfully removed from the site. Confirmation sampling will only occur where soil excavation has occurred.

1. From each row (in the east to west direction, or 1 to X on Figure 3-1), a soil sample from the location having the highest final Jerome Meter reading will be sampled from 0 to 3 inches using a hand auger or trowel, if possible, or a shovel and pick ax if the ground is too firm for the hand auger. The soil will be placed into a stainless steel mixing bowl, mixed thoroughly, and placed in four 4-ounce clean laboratory jars for analysis.
2. All samples will be labeled with the site, date, time, and sample grid location, and initialed by sampler. All samples will be placed in individual plastic bags and sealed to avoid cross contamination, and immediately placed in a cooler with ice. Care will be taken in filling the coolers to avoid breakage. A chain of custody will accompany the samples to the laboratory.
3. Between samples, the sampling equipment will be cleaned with the following protocol:
 - Alconox Wash with potable water
 - Tap water dip rinse
 - Mercury decontamination solution
 - Tap water dip rinse, separate container
 - Distilled water spray rinse
 - Air Dry
4. The samples will be shipped to Test America's Bartlett Laboratory for analysis of total mercury using method SW846 – 7471A, which has a method detection limit of 0.04 mg/kg and TCLP mercury by Method SW 846-1311 and 7470A which has a method detection limit of 0.0002 mg/L. In addition, the soil pH and % solids will be measured, so that it can be determined whether the soil migration to ground water pathway objectives are achieved and to report the results on a dry weight basis.
5. Duplicates will be collected for mercury and pH on one in ten samples. Field blanks and trip blanks will be collected daily when conducting confirmation sampling.
6. Test America will provide results ten working days from receipt.
7. Any confirmation samples above the objectives will necessitate further soil removal and additional confirmation testing.

4. MISCELLANEOUS AREAS AT REPORTING CENTERS AND COMMERCIAL/INDUSTRIAL FACILITIES

There are other areas at the various Reporting Centers and at industrial/commercial facilities where mercury vapor readings have been identified. Examples include concrete floors where the mercury flasks have been stored and areas around manometer locations at industrial sites.

In the case of a trash dumpster testing positive, the contents of the dumpster will be transferred into lined 55-gallon drums for disposal at EQ as low level mercury waste. The dumpster will then be cleaned following a similar protocol to the scrap bins in the previous sections, with a cleanup goal of 0.010 mg/cu m, based upon an average of not less than six readings.

Concrete with mercury vapor readings above 0.010 mg/cu m will be first vacuumed with a mercury approved vacuum, with mercury trap, carbon, and HEPA filter. The pad will then be washed with a mercury decontamination solution. Wooden surfaces will be decontaminated at the Nicor Reporting Centers to 0.025 mg/cu m, recognizing the difficulty in decontaminating more porous-type surfaces.

Using the Jerome meter, Mercury vapor readings will be collected between 3 and 6 inches off the concrete floor not less than 1 reading for every 50 sq ft. Any areas exhibiting more than 0.010 mg/cu m will be decontaminated again, and if necessary, sealed.

5. NICOR GAS SERVICE VEHICLES

Mercury vapor may be present in some trucks, within the passenger cab, the tool and pipe fitting bins, and the cargo space area. Because these trucks travel on public streets, decontamination will be conducted until each area achieves an mercury vapor reading in each of the three areas of less than or equal to 0.010 mg/cu m. using a Jerome Meter. The following screening and decontamination protocol will be followed:

1. Nicor Safety Department personnel accompanied by a Fleet Management employee will visit each Reporting Center.
2. Each truck will be screened for mercury vapor at the following locations.

Cab

Left side floor	Right side floor
Left side seat	Right side seat
Left side head level	Right side head level

Bin #1

Top Side
Middle
Bottom

Bin #2

Top Side
Middle
Bottom

Cargo Area

Floor level (3-6" off floor)
4 samples minimum

3. Any cab or cargo areas with a mercury reading above 0.010 mg/cu m will be inspected for visible mercury. If observed, it will be cleaned using Hg Absorb and Mercury Vapor Absorbent Powder. The cleaned area will then be retested.
4. Vehicles that fail to achieve the 0.010 mg/cu m. mercury vapor objective will be driven to Heritage Environmental Services for a more aggressive protocol.
5. The area of the truck that is above the mercury vapor objective will result in discarding all materials within the area in a low level mercury waste lined 55-gallon drum. Tools will be decontaminated with a mercury decontamination solution. The area will be vacuumed and washed with a mercury decontamination solution above drip pans. The cleaned area will then be retested.

6. The decontamination solution will be disposed of at Heritage's Indianapolis Mercury Treatment Facility as Hazardous or Non-Hazardous waste, depending on the TCLP mercury level.

CH02/22091740.2